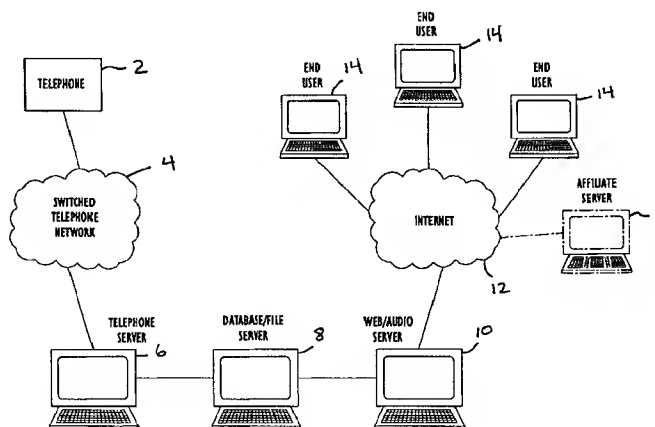




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(54) Title: WEB-PAGE AUDIO MESSAGE SYSTEM AND METHOD



## (57) Abstract

A web-page audio message system includes a telephone server (6), a database server (8), a file server (8), a web server (10) and an audio server (10). A user desiring audio service registers with the system via the web server (10). The web server (10) retrieves user information and forwards that information to the database server (8) for storage. Alternatively, a user may obtain audio service through an affiliate web-page (9) or other service provider by requesting the audio message feature. The user may have one or more audio buttons and corresponding messages associated with one or more web-pages. Once a user is registered, the user may create or modify the audio message by accessing the telephone server (6) via a conventional telephone (2). The telephone server (6) prompts the caller for an access code, PIN, and button number, and verifies the entered information. A user message is recorded and the telephone server provides an audio file to the file server (8) for storage. When an end user visits a web-page and selects an audio button, a database query is transferred to the database server (8) to retrieve the corresponding audio file. The database server (8) tracks information relating to users, selection of audio buttons and the quantity of selections for marketing purposes. The retrieved audio file is transferred from the file server (8) to the audio server (10) for playback to the end-user.

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## **WEB-PAGE AUDIO MESSAGE SYSTEM AND METHOD**

### **CROSS-REFERENCE TO RELATED APPLICATIONS**

This application claims priority from U.S. Provisional Patent Application Serial No. 60/113,461, entitled "Web-Page Audio Message System and Method", filed December 23, 1998. The disclosure of the above-referenced provisional patent application is incorporated herein by reference in its entirety.

### **BACKGROUND OF THE INVENTION**

#### **1. Technical Field**

The present invention pertains to audio publishing tools. In particular, the present invention is directed toward a system facilitating creation and modification of audio information on an Internet web-page via a conventional telephone.

#### **2. Discussion of Related Art**

The Internet is an established medium for disseminating tremendous amounts of information to a large number of people. One way the Internet is used as a medium for information dissemination is via audio which can be accessed on a web-page. Internet audio has been utilized only to a limited extent because the process of audio input and change on a web-page is cumbersome and time consuming. Further, a level of technical sophistication, usually beyond that of an ordinary person, and a significant amount of time are typically required to enter or change audio content on a web-page. The present invention pertains to a system and method that alleviate both of these obstacles. In particular, the system allows the content of an audio message to be placed on a web-page and modified using a conventional telephone in a minimum amount of time without requiring technical expertise. The system enables individual users to place and modify audio messages on their own web-pages, or permits affiliate web-page or other service providers to provide this feature in response to user requests. In addition, the system may further be utilized to provide audio for e-mail or other applications.

Currently, placing audio content on a web-page requires digitization of the audio on a local computer, converting the audio into a compatible or web friendly format (e.g., a format that can be stored on a web server, such as Real Audio or any other one of several currently available formats), and transferring the resulting converted audio file to a web server (e.g., the server containing the web-page). Once the file resides on the web server, the web server is configured in a format that is capable of serving Real Audio files (e.g., one such format is

1 Real Server). Finally, a hyperlink or icon is placed on the web-page to provide end-user  
2 access to the audio file audio content. This entire process is repeated in order to modify the  
3 audio content.

#### 4 OBJECTS AND SUMMARY OF THE INVENTION

5 Accordingly, it is an object of the present invention to simplify both the initial entry  
6 of audio content onto a web-page, and the subsequent changing of the audio content on the  
7 web-page.

8 It is another object of the present invention to permit entry and modification of a web-  
9 page audio message using a conventional telephone.

10 A further object of the present invention is to permit a person without significant  
11 technical training to enter and change audio content on a web site.

12 The aforesaid objects are achieved individually and in combination, and it is not  
13 intended that the present invention be construed as requiring two or more of the objects to be  
14 combined unless expressly required by the claims attached hereto.

15 According to the present invention, a web-page audio message system includes a  
16 telephone server, a database server, a file server, a web server and an audio server. The  
17 servers may be implemented on and/or distributed among any quantity of computer systems.  
18 A user desiring audio service registers with the system via the web server. The web server  
19 retrieves user information and forwards that information to the database server for storage.  
20 The database server generates a user identification to uniquely identify the user to the system,  
21 while the web server provides computer code to enable the user to update his/her web page to  
22 include an audio button. The user may have one or more audio buttons and corresponding  
23 messages associated with one or more web-pages.

24 Alternatively, a user may obtain audio service through an affiliate web-page or other  
25 service provider by requesting the audio message feature. The affiliate provider retrieves  
26 user information and communicates directly with the system web server to register the user  
27 for audio service. The affiliate provider retrieves information from the web server and  
28 updates the user web-page to include an audio button for playback of an audio message.

29 Once a user is registered, the user may create or modify the audio message by  
30 accessing the telephone server via a conventional telephone. The telephone server prompts  
31 the caller for an access code, PIN and button number, and verifies the entered information.  
32 A user message is recorded and the telephone server provides an audio file to the file server  
33 for storage.

1 When an end-user visits a web-page and selects an audio button, a database query is  
2 transferred to the database server to retrieve the corresponding audio file. The database  
3 server tracks information relating to users, selection of audio buttons and the quantity of  
4 selections for marketing purposes. The retrieved audio file is transferred from the file server  
5 to the audio server for playback to the end-user.

6 The above and still further objects, features and advantages of the present invention  
7 will become apparent upon consideration of the following detailed description of specific  
8 embodiments thereof, particularly when taken in conjunction with the accompanying  
9 drawings wherein like reference numerals in the various figures are utilized to designate like  
10 components.

### 11 BRIEF DESCRIPTION OF THE DRAWINGS

12 Fig. 1 is a diagrammatic illustration of a network topology extending between a  
13 telephone and the Internet according to the present invention.

14 Fig. 2 is a diagrammatic illustration of a portion of the network topology of Fig. 1  
15 extending between a switched telephone network and the Internet.

16 Fig. 3A is a block diagram of a telephone application server illustrating the server  
17 internal software hierarchy according to the present invention.

18 Fig. 3B is a procedural flow chart illustrating the manner in which user audio is  
19 managed by the telephone server according to the present invention.

20 Fig. 3C is a block diagram of a database/file server illustrating the server internal  
21 software hierarchy according to the present invention.

22 Fig. 3D is a block diagram of a web/audio server illustrating the server internal  
23 software hierarchy according to the present invention.

24 Fig. 4A is a procedural flow chart illustrating the manner in which audio is placed on  
25 a web-page according to the present invention.

26 Fig. 4B is exemplary HTML code facilitating audio access from a web-page.

27 Fig. 4C is a procedural flowchart illustrating the manner in which audio residing on a  
28 web-page is accessed by end-users according to the present invention.

### 29 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

30 A system for placing audio on a web-page according to the present invention is  
31 illustrated in Fig. 1. Specifically, an ordinary or conventional telephone instrument 2  
32 communicates with a telephone server 6 through a switched telephone network 4. The  
33 telephone server includes software to perform various telephone server applications, such as  
34 answering calls, providing voice prompts and responding to touch tone responses as

1 described below. In addition, the telephone server records audio information and stores the  
2 information in a telephony native format. A database/file server 8 is in communication with  
3 telephone server 6 and a web/audio server 10. Servers 6, 8, 10 may reside at the same or  
4 different remote sites, and may communicate via any desired communications medium.  
5 Database/file server 8 includes software to perform database and file server applications, and  
6 generally stores user information and organizes audio files containing the audio information  
7 received from telephone server 6. The web/audio server is connected to Internet 12 and  
8 includes software to perform web and audio server applications. This server typically  
9 handles user registration and playback of web-page audio messages to end-users 14. It is to  
10 be understood that the term "end-user" as used herein refers to an individual user and/or the  
11 computer or other processing system utilized by the user to perform the described functions  
12 (e.g., accessing a web site, clicking on an icon or button, etc.). The end-user computer  
13 system may be implemented by any computer system, such as a personal computer (e.g., IBM  
14 compatible, Macintosh, Linux, etc.), including the proper components (e.g., memory,  
15 processor, modem, network interface card, browser, streaming audio player (e.g., stand alone  
16 or plug-in Real Audio or Windows Media Player) and other software, etc.) and configuration  
17 for communicating over the particular communications medium.

18 The system may provide audio service to individual users maintaining their own web-  
19 site, or to affiliate web-page or other service providers. The individual users register directly  
20 with web/audio server 10 in order to obtain access to system services as described below.  
21 Affiliate providers typically perform various services, such as creating and maintaining web  
22 sites for customers or interested users for various purposes. An exemplary affiliate may be a  
23 dating service having an Internet web site providing web-pages associated with individuals  
24 with each individual utilizing the system to place an audio message on his/her web-page. An  
25 interested user may request the affiliate to provide audio service, and subsequently enters  
26 registration information into an affiliate server 9 hosting the affiliate web site. The affiliate  
27 server communicates with web/audio server 10 to register the interested user with the system  
28 in a manner similar to that described above for an individual user. The system may further be  
29 utilized to provide audio messages for e-mail, e-commerce or any other applications. In  
30 addition, the system may provide audio service through any third party or affiliate service  
31 provider.

32 A registered user places an audio message on a web-page by accessing telephone  
33 server 6 via telephone 2, dialing numbers on telephone 2 that serve as an access code, a  
34 personal identification number (PIN) and a button number (e.g., to associate the audio

1 message with a particular web-page button), and communicating the audio message over the  
2 telephone to the telephone server as described below. The telephone server retrieves  
3 information from the user, records the message and forwards the information and audio  
4 message to database/file server 8 for storage. End-users 14 subsequently accessing the web-  
5 page through the Internet are able to listen to the recorded message by clicking on a web-  
6 page button that causes web/audio server 10 to retrieve the audio message from the  
7 database/file server and play the message back to the end-users.

8 A further detailed view of the connection from switched telephone network 4 to  
9 Internet 12 with emphasis on the hardware and data transport mechanisms is illustrated in  
10 Fig. 2. Specifically, a connection 16 is provided from switched telephone network 4 to a T1  
11 interface card 18 (e.g., T1 is a conventional type of communications line) that is in  
12 communication with telephone server 6. The interface card is typically implemented by a  
13 standard voice T1 card having standard protocol voice encoding (e.g., "bz8f") and a full  
14 twenty-four (24) channels. One example of a twenty-four (24) channel T1 card suitable for  
15 use in the present invention is the T1 card manufactured by the Linkon Corporation (e.g.,  
16 commonly referred to as Teravox), whereby the card further serves as an extended SBUS  
17 (e.g., serial bus) attached to telephone server 6. The T1 card provides a connection to the  
18 switched telephone network and preferably includes eight Digital Signal Processors ("DSPs")  
19 that process and convert analog voice data into digital data. The digitizing is accomplished  
20 using a standard ulaw (e.g., a conventional type of file or data format) technique.  
21 Alternatively, the interface card may be of any quantity, and may be implemented by any  
22 suitable communications device capable of accommodating any quantity (e.g., at least one) of  
23 channels, having any quantity of DSPs, employing any conventional or other encoding  
24 techniques and being compatible with any type of communications line. Web/Audio server  
25 10 is connected to an OC12 Internet backbone 20 (e.g., a conventional communications  
26 device having high bandwidth capabilities) that is maintained by a co-location facility (OCF).

27 The internal software hierarchy and relationship between components of the system  
28 servers is illustrated in Figs. 3A - 3D. Initially, the servers are each preferably implemented  
29 by a computer system manufactured by Sun Microsystems, such as a Sparc or other Unix  
30 system, however, any computer or other processing system capable of performing the  
31 described functions may be utilized. Referring to Fig. 3A, an operating system (OS) 22, such  
32 as Sun Solaris, Windows, etc., provides the foundation and support for every layer of  
33 telephone server 6. A Transport Control Protocol/ Internet Protocol ("TCP/IP") 24 provides  
34 the transport layer (e.g., a layer that coordinates communications in accordance with a

1 communications standard) for all the processes and applications within telephone server 6,  
2 while Open Database Connectivity (ODBC) 24 serves as an application programming  
3 interface for accessing a database residing on database/file server 8. The TCP/IP and ODBC  
4 functions may be implemented by any commercially available or custom software capable of  
5 enabling the telephone server to communicate over the Internet or other communications  
6 medium and access the database.

7         Telephony board software module 26 is preferably implemented by commercially  
8 available software provided with the T1 interface card. This software enables the card to  
9 control the telephone line (e.g., answer incoming calls and release the line), provide voice  
10 prompts and interpret touch tone responses, and record audio messages in a format native to  
11 the telephony equipment (e.g., interface card 18). Software module 26 basically facilitates  
12 interaction with a caller and provides caller response information to an audio management  
13 software module 28. A Real Audio Encoder 30 converts the audio file into a Real Audio  
14 format as described below for playback of the message across the Internet, while Network  
15 File System (NFS) 32 facilitates file transfers between the servers. The Real Audio Encoder  
16 and NFS may be implemented by any commercially available or custom software.

17         Audio management software module 28 creates and manages user audio and provides  
18 interfaces for communication between telephony (e.g., interface card 18), database and audio  
19 mass storage (e.g., database/file server). The software module is generally platform  
20 independent and modular, and may communicate with a variety of telephony equipment,  
21 databases and file storage systems. Software module 28 generally includes a plurality of  
22 instances of substantially the same program with each program instance monitoring a  
23 particular channel of interface card 18. It is to be understood that software module 28 may be  
24 utilized independent of the present invention system.

25         Audio management software module 28 receives information from telephony board  
26 software module 26 and facilitates processing of caller requests as illustrated in Fig. 3B.  
27 Specifically, software module 28 presents a greeting message to a caller at step 80 in  
28 response to the telephony hardware (e.g., interface card 18) answering an incoming call. The  
29 message is typically pre-recorded and stored in telephony hardware memory. A connection is  
30 established to database/file server 8 to access user information, while the caller is prompted  
31 for an access code (e.g., preferably ten digits) at step 82. Software module 28 verifies the  
32 format of the access code (e.g., correct quantity of digits, no illegal prefixes, etc.) to reduce  
33 overhead at the network and database levels. The caller is prompted to re-enter the code  
34 when the entered format is unacceptable. If the caller does not provide a valid format after



1 several opportunities, an error phrase is played and the call is disconnected. The  
2 corresponding program instance subsequently resumes listening for the next call.

3         Once an acceptably formatted code is entered, a SQL database request is sent to the  
4 database/file server, via TCP/IP and ODBC 24 or a local shared memory, to verify the user  
5 access code (e.g., to retrieve user information based on the entered access code) at step 84. If  
6 the entered code is not valid, the caller is prompted to re-enter a code. When the caller has  
7 failed to enter a valid access code within several attempts as determined at step 86, the call is  
8 disconnected.

9         Upon entry of a valid access code and retrieval of user information (e.g., unique user  
10 identification, PIN, etc.), software module 28 prompts the caller to enter a PIN (e.g.,  
11 preferably four digits) at step 88. The entered PIN format is verified as described above, and  
12 compared to the PIN retrieved from database/file server 8 at step 92. If the entered PIN is not  
13 valid, the caller is prompted to re-enter a PIN. When the caller has failed to enter a valid PIN  
14 within several attempts as determined at step 94, the call is disconnected.

15         After verifying the caller, software module 28 retrieves the total quantity of audio  
16 buttons associated with the caller (e.g., the total number of audio messages on caller web-  
17 pages) from database/file server 8 at step 96 via a SQL request. A user may have one or  
18 more messages associated with one or more web-pages, and the system generally does not  
19 limit the quantity of messages. The caller is further prompted to enter a particular button  
20 number that will be utilized to retrieve the message at step 98, and software module 28  
21 verifies the entered button number against the retrieved information. If an invalid button  
22 number is entered, the caller is prompted to re-enter a button number with the call being  
23 terminated when the caller fails to provide a valid number within several attempts.

24         Once a valid button number is entered, the caller is prompted to select a particular  
25 action at step 98. The options typically include: 1) play the recording for the button; 2)  
26 record audio for this button; 3) select another button; or 4) exit and disconnect. In response  
27 to selecting "play recording" as determined at step 100, software module 28 loads a  
28 telephony native audio file containing the audio message into the interface card memory and  
29 plays back the message at step 102. This file has a format native to the telephony system  
30 utilized (e.g., interface card 18), and is typically stored on and retrieved from database/file  
31 server 8. The database/file server generally stores the audio message in the telephony native  
32 format and a button destination format (e.g., Real Audio) enabling playback to an end-user.  
33 The dual storage enables immediate loading of an audio file into the telephony system

1 without performing a conversion. After play back of the message, the caller is prompted to  
2 enter a button number and select an action at step 98 as described above.

3 When the caller selects "record a message" as determined at step 104, software  
4 module 28 loads the received audio message into the interface card memory at step 106 and  
5 records the message in the telephony native format at step 108. The caller may re-record the  
6 message as many times as desired. The entered message is recorded without format  
7 conversion, thereby enabling virtually immediate recordings. After recording the message,  
8 the caller is prompted to enter a button number and select an action at step 98 as described  
9 above.

10 If "another button" is selected by the caller as determined at step 110, software  
11 module 28 determines at step 112 whether or not the current button audio has changed. In  
12 response to a button audio change (e.g., as indicated by a byte count change within the  
13 telephony native file), software module 28 converts the audio content of the telephony native  
14 file to a button destination format (e.g., Real Audio) via Real Audio Encoder 30 and stores  
15 the converted file in database/file server 8. In addition, the new telephony native file is stored  
16 in database/file server 8 at step 116 as described above. In order to convert the telephony  
17 native file to the button destination file, the native file is first converted to a conversion audio  
18 file format (e.g., Unix file), and subsequently transformed to the button destination file.  
19 Upon completion of audio file storage, or if the button audio has not changed, the caller is  
20 prompted to enter a button number and select an action at step 98 as described above.

21 In response to the caller selecting "exit" as determined at step 118, software module  
22 28 determines whether or not the current button audio has changed at step 118, and, in  
23 response to a change, converts and stores the audio file in database/file server 8 at step 120 as  
24 described above. In addition, the new telephony native file is stored in the database/file  
25 server at step 122 as described above. Upon completion of the audio file storage, or if the  
26 button audio has not changed, the call is terminated and software module 28 monitors the  
27 channel for the next call. It is to be understood that software module 28 utilizes telephony  
28 board software module 26 (e.g., and hence interface card 18), Real Audio Encoder 30 and  
29 NFS 32 to perform the above-described functions (e.g., play voice prompts, receive entered  
30 user information, record messages, convert audio files, transfer files, etc.).

31 The audio files on database/file server 8 are generally arranged in a manner for  
32 efficient management that is based on user information. In particular, when a caller enters an  
33 access code and PIN, the unique user identification associated with the caller is retrieved  
34 from the database/file server to provide software module 28 with the information to create or

1 modify native, conversion and button destination audio files. These audio files are stored and  
2 managed within a directory/folder hierarchy determined by the user identification. By way of  
3 example, the last four digits of a user identification (e.g., preferably eight digits) are reversed  
4 in order and utilized to create or locate a path to the audio files for a caller. For example, if a  
5 user identification is '12345678', an audio file storage area path for that user would be  
6 8/7/6/5/12345678. Since the total quantity of folders is generally limited to ten, the top level  
7 structure may be spread across several devices to improve performance and reliability.

8 In addition, software module 28 may determine usage by individual number dialed.  
9 In particular, software module 28 may request the dialed number from a common DNIS  
10 (Dialed Number Identification System), and record the caller, line owner and time off-hook  
11 for each call. This permits allocation of bandwidth (e.g., telephony channels) on an as  
12 needed basis (e.g., without assigning specific channel ranges to individual line owners).  
13 Software module 28 may be implemented in any suitable computer language.

14 Database/file server 8 (Fig. 3C) includes OS 22, TCP/IP and ODBC 24 and NFS 32 as  
15 described above. The database/file server further includes database 34, preferably  
16 implemented by an Informix database, to maintain (e.g., stores and updates) user information  
17 and generate user identifications as described below. Web/Audio server 10 (Fig. 3D)  
18 similarly includes OS 22, TCP/IP and ODBC 24 and NFS 32 as described above. Further,  
19 the web/audio server includes commercially available Apache Web Server, PHP and Real  
20 Server software 36 to accommodate end-user audio and registration requests received from  
21 the Internet as described below. The web/audio server is preferably implemented by a pair of  
22 computer systems to provide redundancy for enhanced reliability (e.g., one system is  
23 available when the other becomes inoperative). The servers may include any  
24 communications device or any commercially available or custom software that enables the  
25 servers to perform the above-described functions. It is to be understood that these functions  
26 may be distributed among any quantity of computer systems in any fashion.

27 The manner in which the present invention stores and retrieves audio messages for  
28 web sites is illustrated in Fig. 4A. Specifically, a user initially registers  
29 with web/audio server 10 (Fig. 1) or via affiliate server 9 at step 40 to obtain audio service.  
30 The user provides an e-mail address, an access code, and a personal identification number  
31 (PIN). The e-mail address enables the system to identify the user when the user logs in over  
32 the Internet. The access code, preferably ten digits, allows the system to identify the user  
33 over the telephone, while the PIN, preferably four digits, is utilized to verify the user. When  
34 the user registers on web/audio server 10, the registration is preferably accomplished via a

1 PHP form with the information being sent to database/file server 8. A user may alternatively  
2 register via affiliate server 9 as described above with the user information being transferred  
3 from the affiliate server to web/audio server 10 to complete registration.

4 Once the user information is obtained and transferred to database/file server 8, a user  
5 identification is generated and database 34 (Fig. 3C) is updated at step 42. The user  
6 identification is preferably an eight digit number that is used by the system to uniquely  
7 identify a user. The user identification is typically generated sequentially with each new  
8 registrant receiving the next available number.

9 Upon an individual user completing the registration process with web/audio server  
10 10, HTML code is sent via e-mail from the web/audio server to the individual user at step 44.  
11 The user incorporates the HTML code into his/her web site via an HTML editor (e.g.,  
12 FrontPage, Web Express, Geocities or any other commercially available or other editor). The  
13 HTML code places one or more buttons on the web-page, each associated with a different  
14 audio message, and includes a query to database 34 to access the audio messages and other  
15 information corresponding to the buttons. For example, the date and time an audio message  
16 was created and/or modified may be retrieved from the database and displayed on the web-  
17 page. Exemplary HTML code generated by the system for a web site is illustrated in Fig. 4B,  
18 and includes standard HTML 3.0 code as outlined in the following publications: Berners-Lee  
19 and Connolly, "Hypertext Markup Language - 2.0", RFC1866, MIT/W3C, November 3,  
20 1995; Nebel and Masinter, "Form-based File Upload in HTML", RFC1867, Xerox  
21 Corporation, November 7, 1995; and Berners-Lee et al, "Hypertext Transfer Protocol --  
22 HTTP/1.0", RFC1945, MIT/LCS, May 17, 1996. Each of these publications is incorporated  
23 herein by reference in their entireties.

24 Alternatively, when the user registers with an affiliate, the database/file server  
25 provides the generated user identification and button number to the affiliate, via web/audio  
26 server 10, to enable the affiliate to modify the user web page at step 44. The web-page may  
27 display the date and time an audio message was created and/or modified as described above.  
28 Thus, the incorporation of HTML code or updating of the web-page is transparent to the user  
29 when an affiliate is utilized.

30 In order to create an audio message, a newly registered user accesses the system at  
31 step 46 by placing a call from a telephone over the switched telephone network to the  
32 telephone server. A telephone to computer software interface device or T1 card 18 (Fig. 2,  
33 e.g., the Teravox described above) interfaces the twenty-four (24) channels of the telephone  
34 server's T1 line to receive incoming telephone calls from the users. When a telephone call is

1 received and the ring tone is detected, the telephone server, via T1 card 18, answers the call  
2 and provides a greeting message as described above. The caller is prompted for an access  
3 code and PIN, and subsequently enters his/her access code and PIN at step 48 as described  
4 above. The entered access code and PIN are retrieved by the telephone server, while user  
5 information is retrieved from the database/file server for verification at step 50 as described  
6 above. If the access code or PIN is invalid, the caller is prompted to re-enter a valid access  
7 code or PIN at step 48 as described above.

8 In response to a valid access code and PIN at step 50, the caller enters the button  
9 number to be associated with the message at step 52 and upon selection of the proper action,  
10 is provided with a message prompting him/her to record a message as described above. The  
11 user enters the audio message at step 54, while the message is processed in real time by the  
12 DSPs of T1 card 18 and associated software (e.g., telephony board software module 26,  
13 audio management software module 28, etc.) as described above. In particular, the entered  
14 audio message is digitized and formatted from a telephony native format into a Unix format  
15 for conversion to Real Audio (e.g., a conventional type of file or data format) at step 56,  
16 while the native and real audio files are transferred to database/file server 8 for storage as  
17 described above.

18 Once an audio message has been recorded, the registered user may subsequently  
19 change the message by accessing the telephone server (e.g., step 46), entering the assigned  
20 access code and PIN (e.g., step 48), and entering a new or changed message (e.g., step 54),  
21 while the entered message is digitized and converted into Real Audio format (e.g., step 56)  
22 and transferred to the database/file server for storage in substantially the same manner  
23 described above.

24 An end-user may retrieve the audio message as illustrated in Fig. 4C. Specifically, an  
25 end-user subsequently visiting a web-page clicks on an audio button at step 60. The  
26 web/audio server receives an audio request from a web server hosting the web-page and  
27 transfers information to the database/file server for processing. Basically, the web-page  
28 HTML code includes a database query containing the user identification and button number.  
29 The query is transferred to web/audio server 10 (Fig. 1) and forwarded to database/file server  
30 8. The query provides information to uniquely identify the appropriate audio file  
31 corresponding to the selected button. The database/file server retrieves the corresponding  
32 audio file and transfers the audio file in Real Audio format to the web/audio server at step  
33 62. The database/file server may further track usage statistics, the amount of times a button is  
34 selected, and which users are communicating or, in other words, the buttons users access, to

1 determine communities or specified groups for marketing purposes. The web/audio server  
2 subsequently transfers the audio file to the end-user audio player for playback to the end-user  
3 at step 64.

4 It will be appreciated that the embodiments described above and illustrated in the  
5 drawings represent only a few of the many ways of implementing a web-page audio message  
6 system and method.

7 The servers may be implemented by any quantity (e.g., at least one) of any types of  
8 computer or other processing systems capable of supporting the above-described software  
9 and performing the above-described functions. The various server functions may be  
10 distributed among any quantity of computer systems in any fashion. The end-user systems  
11 may be implemented by any computer or other processing system (e.g., IBM-compatible or  
12 Macintosh PC, laptop, PDA, Linux, etc.) capable of executing a browser and/or performing  
13 communications functions. The web sites may reside on any of the servers or any other  
14 server or computer system interfacing the Internet or communications medium. The servers  
15 may reside in the same or different locations.

16 The database may be implemented by any type of commercially available or other  
17 databases. The database/file server or any other server may track any type of information  
18 relating to a user or user transactions.

19 The communications medium may be implemented by a local (LAN) or wide area  
20 (WAN) network, the Internet, direct connection (e.g., via modem) or any other  
21 communications path, while the communications devices (e.g., T1 card, modems or other  
22 devices in the end-user systems, etc.) may be implemented by any suitable devices (e.g.,  
23 standalone or included within the telephone server or other device) enabling communication  
24 over the communications path. The T1 card may be implemented by any communications  
25 device having any quantity of channels and DSPs or other signal processing devices, and  
26 accommodating any type of line. The telephone may be implemented by any telephone or  
27 other device capable of communicating with the telephone server and providing audio  
28 information (e.g., modem in combination with a microphone, cellular telephone, etc.).

29 The encoding/decoding and digitization may be implemented by any conventional or  
30 other techniques. The audio may be contained within and/or converted to any desired file  
31 types or formats (e.g., Real Audio, native telephony format, Unix, .au file, .wav file, etc.).  
32 The servers and end-user computer systems of the present invention may include any  
33 conventional or custom software or applications capable of controlling the computer systems

1 to perform the above-described functions where the software may be implemented in any  
2 suitable computer languages. The software and/or algorithms within the present invention  
3 may be modified in any fashion while still achieving the general functions described above.  
4 It is to be understood that descriptions herein of software performing functions refers to  
5 computer systems or devices performing those functions under software control.

6 The access code, PIN and user identification may have any quantity of alphanumeric  
7 or other characters to identify a user. Any types or quantities of codes or other information  
8 may be utilized to identify and/or verify a user (e.g., access code, PIN and user identification  
9 may be used individually or in any combination). The user identification may be generated  
10 by any of the servers in any fashion producing a unique identification. A user may have any  
11 quantity of buttons or audio messages on a web-page. The button may have any shape, size  
12 or appearance, and may be implemented by a link, button, icon or any other functional  
13 symbol. The buttons may be identified by any quantity of alphanumeric or other characters.

14 It is to be understood that the present invention pertains to any computer or other  
15 processing system capable of receiving audio information from a user via a conventional  
16 telephone or other communications device, and readily providing access and playback of the  
17 audio information from a web-page. The present invention is not limited to the specific  
18 applications disclosed herein, but may be utilized to provide audio for any types of  
19 applications (e.g., e-mail, e-commerce, pagers, portable telephones, etc.). Further, any type  
20 of affiliate or third party provider may utilize the system to provide audio service to  
21 customers or interested users.

22 From the foregoing description, it will be appreciated that the invention makes  
23 available a novel web-page audio message system and method wherein audio messages on a  
24 web-page may be created and modified via a conventional telephone.

25 Having described preferred embodiments of a new and improved web-page audio  
26 message system and method, it is believed that other modifications, variations and changes  
27 will be suggested to those skilled in the art in view of the teachings set forth herein. It is  
28 therefore to be understood that all such variations, modifications and changes are believed to  
29 fall within the scope of the present invention as defined by the appended claims.

What is Claimed is:

1           1. An audio publishing system to provide audio information at a site within a  
2 communications network, wherein said audio information is manipulable by a user via access  
3 to said system by a telephone line, said system comprising:

4           registration means for retrieving and storing user information to enable said system to  
5 identify said user;

6           communications means for receiving and terminating calls on said telephone line and  
7 prompting for and interpreting a caller request;

8           audio processing means for storing audio information received from said caller within  
9 an audio file and processing said audio file in response to said caller request;

10          a database to store said user information and retrieval information relating to said  
11 audio file;

12          a file system for storing said audio file received from said audio processing means  
13 based on said retrieval information; and

14          network audio means for receiving an audio request from said network site and  
15 retrieving a corresponding audio file based on said retrieval information for transmission to  
16 said network site for playback.

1           2. The system of claim 1 wherein said database includes monitor means for collecting  
2 and storing information relating to system usage.

1           3. The system of claim 1 wherein said audio processing means includes:

2           verification means for prompting said caller to enter verification information and  
3 comparing said entered information to said user information stored in said database to verify  
4 that said caller is registered with said system;

5           record means for recording said audio information in the form of voice signals  
6 received from said caller within said audio file in response to a caller record request;

7           playback means for retrieving said audio file and playing said audio file back to said  
8 caller in response to a caller playback request;

9           storing means for storing said audio file within said file system in response to an  
10 audio file modification and a caller request to either process additional audio information or  
11 exit; and



conversion means for converting said audio file to a format compatible for playback over said network and storing said formatted file within said file system in response to an audio file modification and a caller request to either process additional audio information or exit.

4. The system of claim 1 further including:

affiliate registration means for retrieving information from said user and transmitting said retrieved information via said communications network to said registration means to register said user with said system.

5. The system of claim 1 wherein said audio information is associated with a plurality of audio messages and said audio processing means includes:

association means for prompting said caller for a message identification and associating said audio information with said message corresponding to said message identification;

message record means for storing said associated audio information for said identified message in a corresponding audio file in response to a caller record request; and

audio playback means for retrieving and playing back said corresponding audio file in response to a caller playback request for said identified message.

6. The system of claim 1 wherein said network audio means includes audio file monitor means for retrieving modification information relating to a date and time of audio file modification from said database and transferring said modification information via said communications network to said network site for display.

7. A program product apparatus having a computer readable medium with computer program logic recorded thereon for facilitating user manipulation of audio information for a site on a communications network, said user manipulating said audio information via access by a telephone line, said program product apparatus comprising:

communications means for receiving and terminating calls on said telephone line and prompting for and interpreting a caller request;

verification means for prompting said caller to enter verification information and comparing said entered information to user information stored in a database to verify that said caller is a registered user;

record means for recording said audio information in the form of voice signals received from said caller within an audio file in response to a caller record request;

playback means for retrieving said audio file and playing said audio file back to said caller in response to a caller playback request;

storing means for storing said audio file within a file system in response to an audio file modification and a caller request to either process additional audio information or exit; and

conversion means for converting said audio file to a format compatible for playback over said network and storing said formatted file within said file system in response to an audio file modification and a caller request to either process additional audio information or exit.

8. The program product apparatus of claim 7 wherein:

said audio information is associated with a plurality of audio messages;

said verification means includes association means for prompting said caller for a message identification and associating said audio information with said message corresponding to said message identification;

said record means includes message record means for storing said associated audio information for said identified message in a corresponding audio file in response to a caller record request for said identified message; and

said playback means includes audio playback means for retrieving and playing back said corresponding audio file in response to a caller playback request for said identified message.

9. In an audio publishing system, a method to provide audio information at a site within a communications network, wherein said audio information is manipulable by a user via access to said system by a telephone line, said method comprising the steps of:

(a) retrieving and storing user information to enable said system to identify said user;

(b) receiving and terminating calls on said telephone line and prompting for and interpreting a caller request;

(c) storing audio information received from said caller within an audio file and processing said audio file in response to said caller request;

(d) storing said user information and retrieval information relating to said audio file within a database;

11 (e) storing said audio file within a file system based on said retrieval information; and  
12 (f) receiving an audio request from said network site and retrieving a corresponding  
13 audio file based on said retrieval information for transmission to said network site for  
14 playback.

1 10. The method of claim 9 wherein step (d) further includes:

2 (d.1) collecting and storing information relating to system usage.

1 11. The method of claim 9 wherein step (c) further includes:

2 (c.1) prompting said caller to enter verification information and comparing said  
3 entered information to said user information stored in said database to verify that said caller  
4 is registered with said system;

5 (c.2) recording said audio information in the form of voice signals received from said  
6 caller within said audio file in response to a caller record request;

7 (c.3) retrieving said audio file and playing said audio file back to said caller in  
8 response to a caller playback request;

9 (c.4) storing said audio file within said file system in response to an audio file  
10 modification and a caller request to either process additional audio information or exit; and

11 (c.5) converting said audio file to a format compatible for playback over said network  
12 and storing said formatted file within said file system in response to an audio file  
13 modification and a caller request to either process additional audio information or exit.

1 12. The method of claim 9 wherein step (a) further includes:

2 (a.1) retrieving information from said user at a network site and transmitting said  
3 retrieved information via said communications network to said system to register said user  
4 with said system.

1 13. The method of claim 9 wherein said audio information is associated with a  
2 plurality of audio messages and step (c) further includes:

3 (c.1) prompting said caller for a message identification and associating said audio  
4 information with said message corresponding to said message identification;

5 (c.2) storing said associated audio information for said identified message in a  
6 corresponding audio file in response to a caller record request for said identified message;  
7 and

8 (c.3) retrieving and playing back said corresponding audio file in response to a caller  
9 playback request for said identified message.

1 14. The method of claim 9 wherein step (f) further includes:

2 (f.1) retrieving modification information relating to a date and time of audio file  
3 modification from said database and transferring said modification information via said  
4 communications network to said network site for display.

1 15. A method of facilitating user manipulation of audio information for a site on a  
2 communications network, said user manipulating said audio information via access by a  
3 telephone line, said method comprising the steps of:

4 (a) receiving and terminating calls on said telephone line and prompting for and  
5 interpreting a caller request;

6 (b) prompting said caller to enter verification information and comparing said entered  
7 information to user information stored in a database to verify that said caller is a registered  
8 user;

9 (c) recording said audio information in the form of voice signals received from said  
10 caller within an audio file in response to a caller record request;

11 (d) retrieving said audio file and playing said audio file back to said caller in response  
12 to a caller playback request;

13 (e) storing said audio file within a file system in response to an audio file  
14 modification and a caller request to either process additional audio information or exit; and

15 (f) converting said audio file to a format compatible for playback over said network  
16 and storing said formatted file within said file system in response to an audio file  
17 modification and a caller request to either process additional audio information or exit.

1 16. The method of claim 15 wherein said audio information is associated with a  
2 plurality of audio messages, and step (b) further includes:

3 (b.1) prompting said caller for a message identification and associating said audio  
4 information with said message corresponding to said message identification;

5 step (c) further includes:

6 (c.1) storing said associated audio information for said identified message in a  
7 corresponding audio file in response to a caller record request for said identified message;  
8 and

- 9           step (d) further includes:
- 10           (d.1) retrieving and playing back said corresponding audio file in response to a caller
- 11    playback request for said identified message.

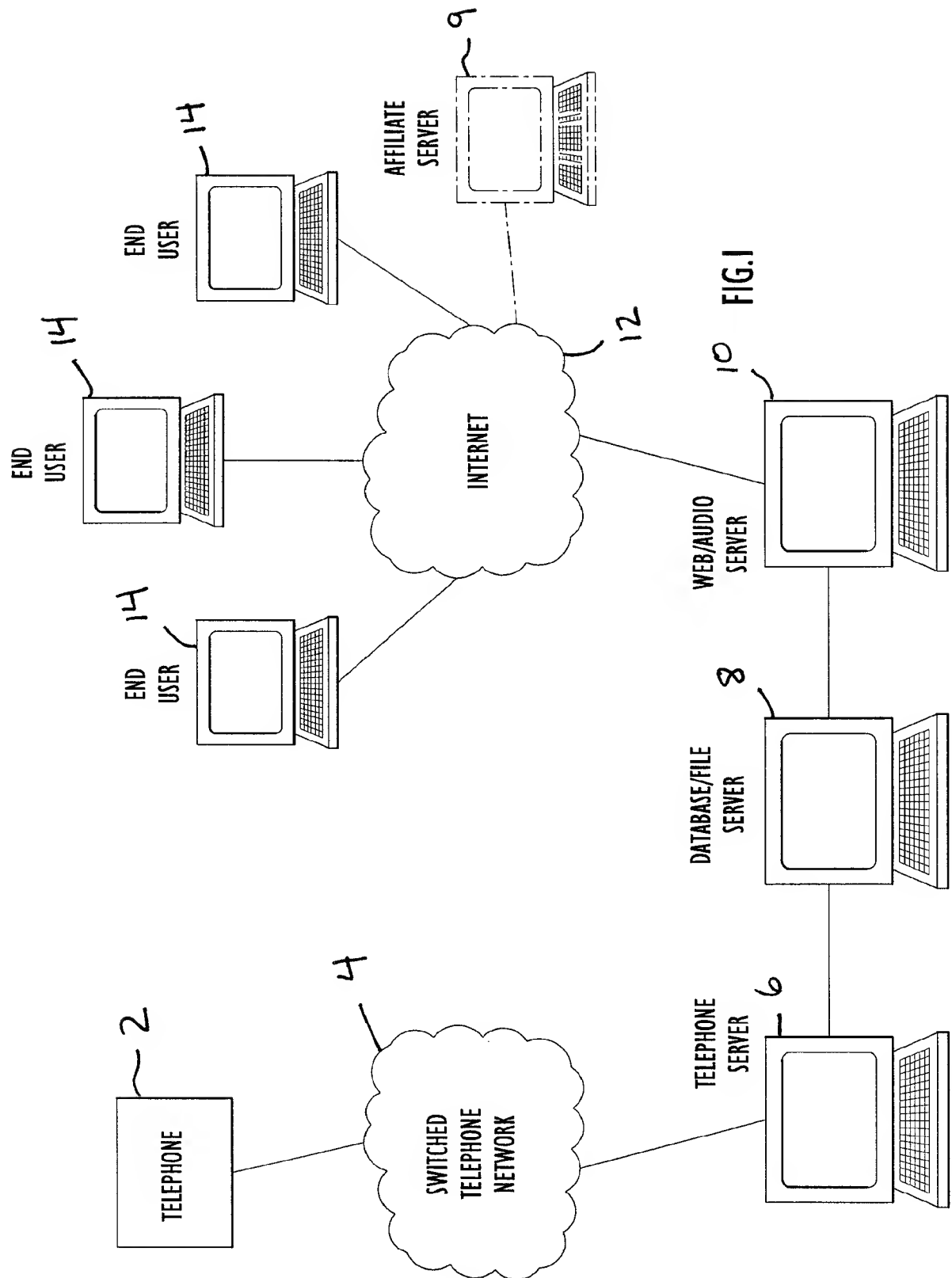
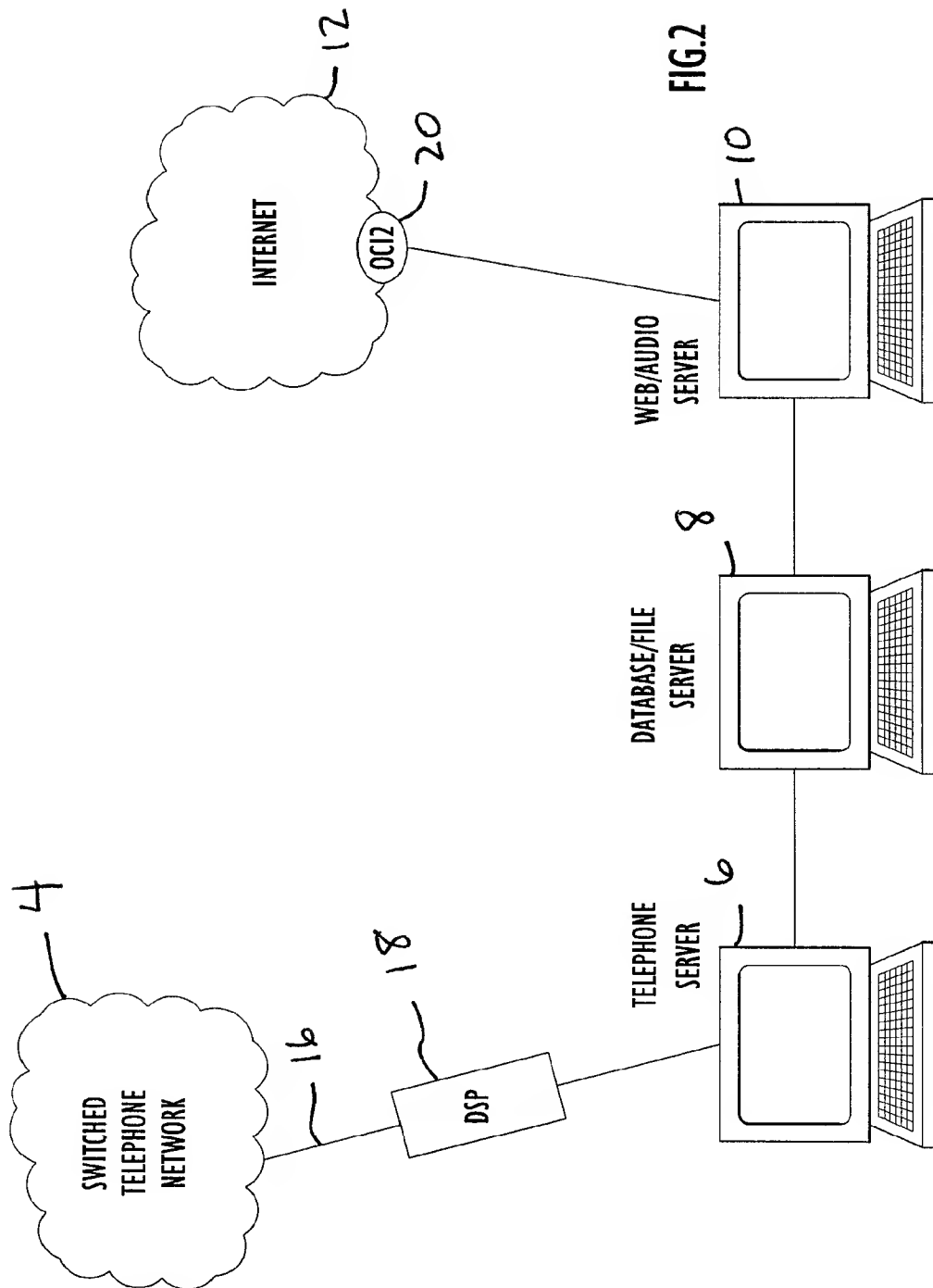


FIG.1



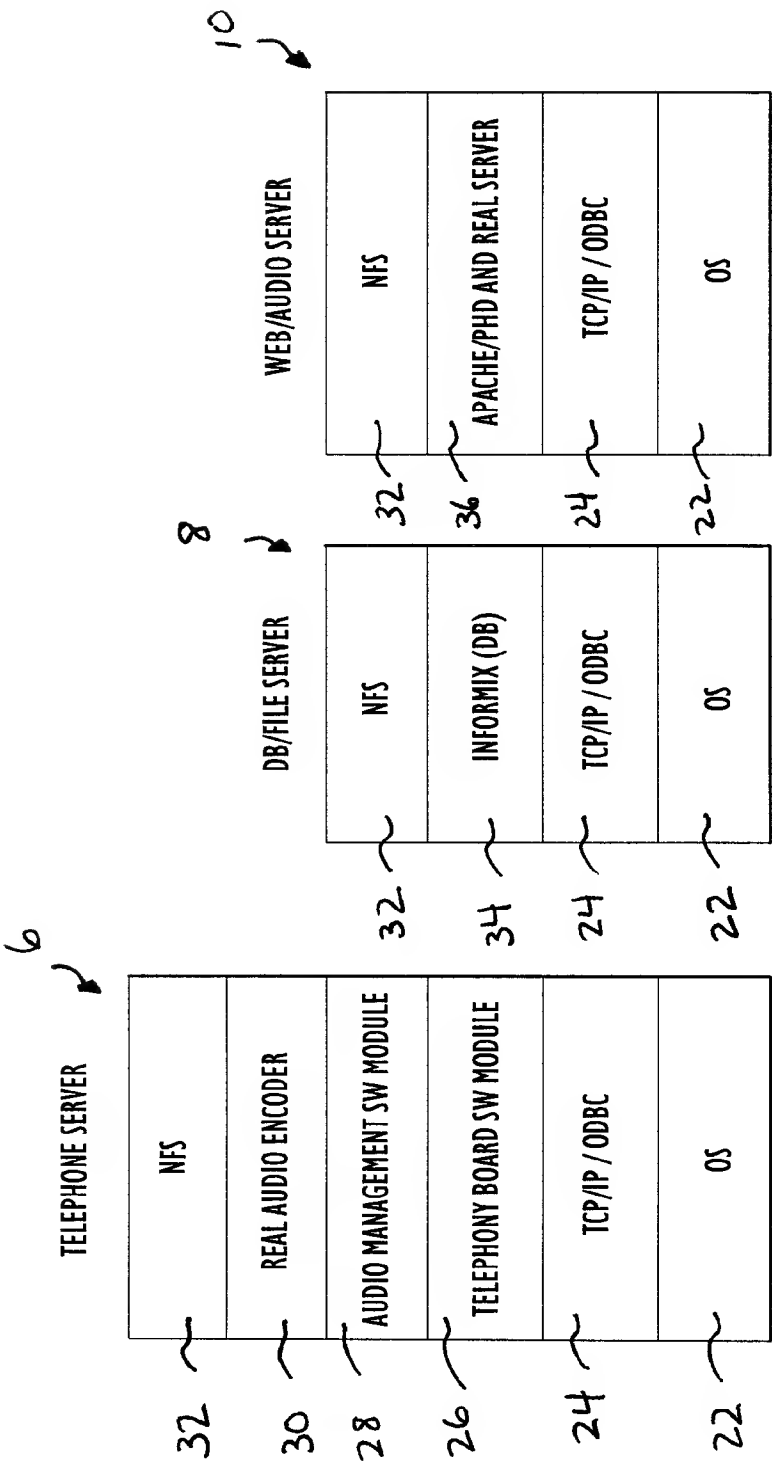


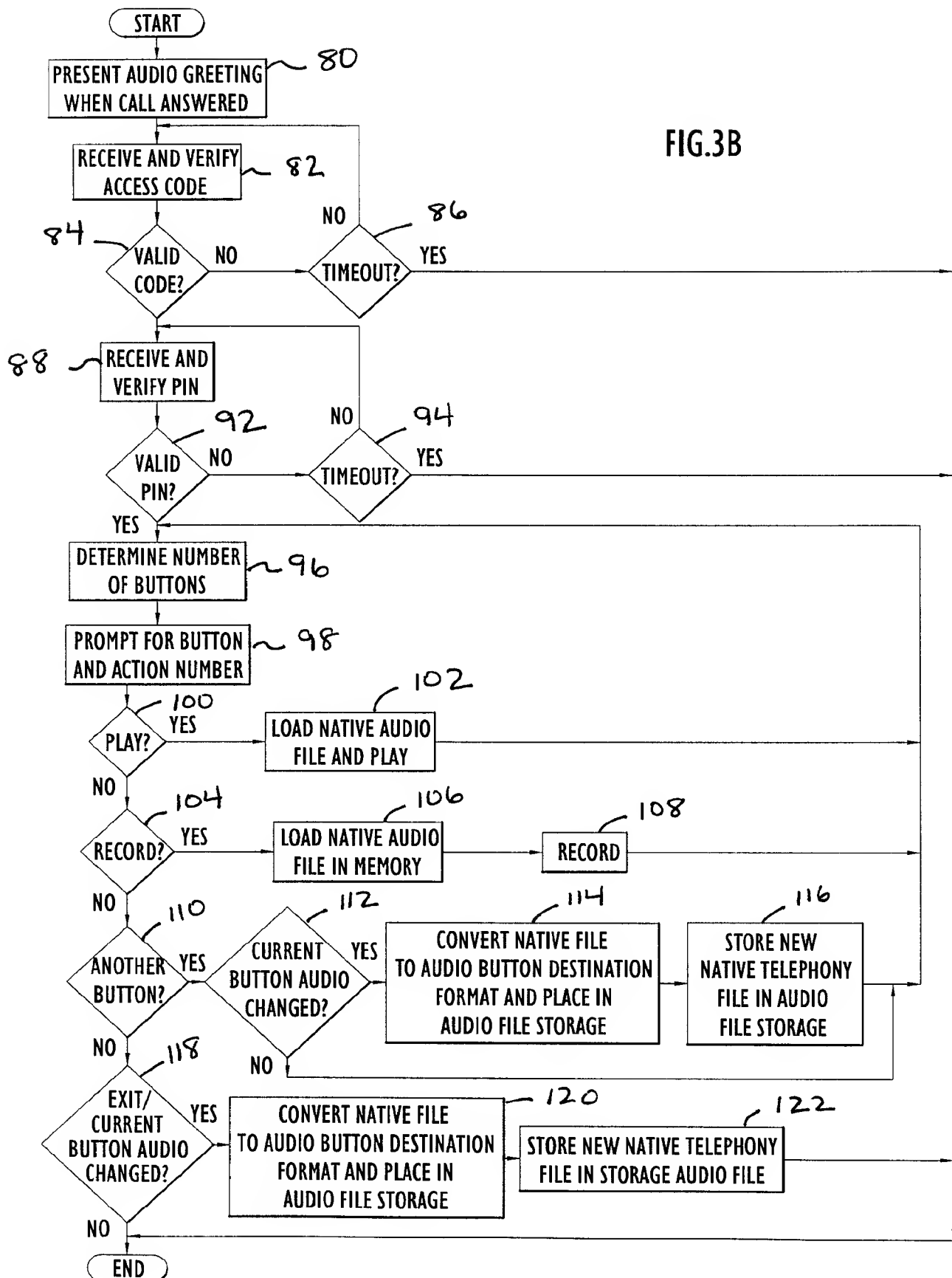
FIG.3D

FIG.3C

FIG.3A



FIG.3B



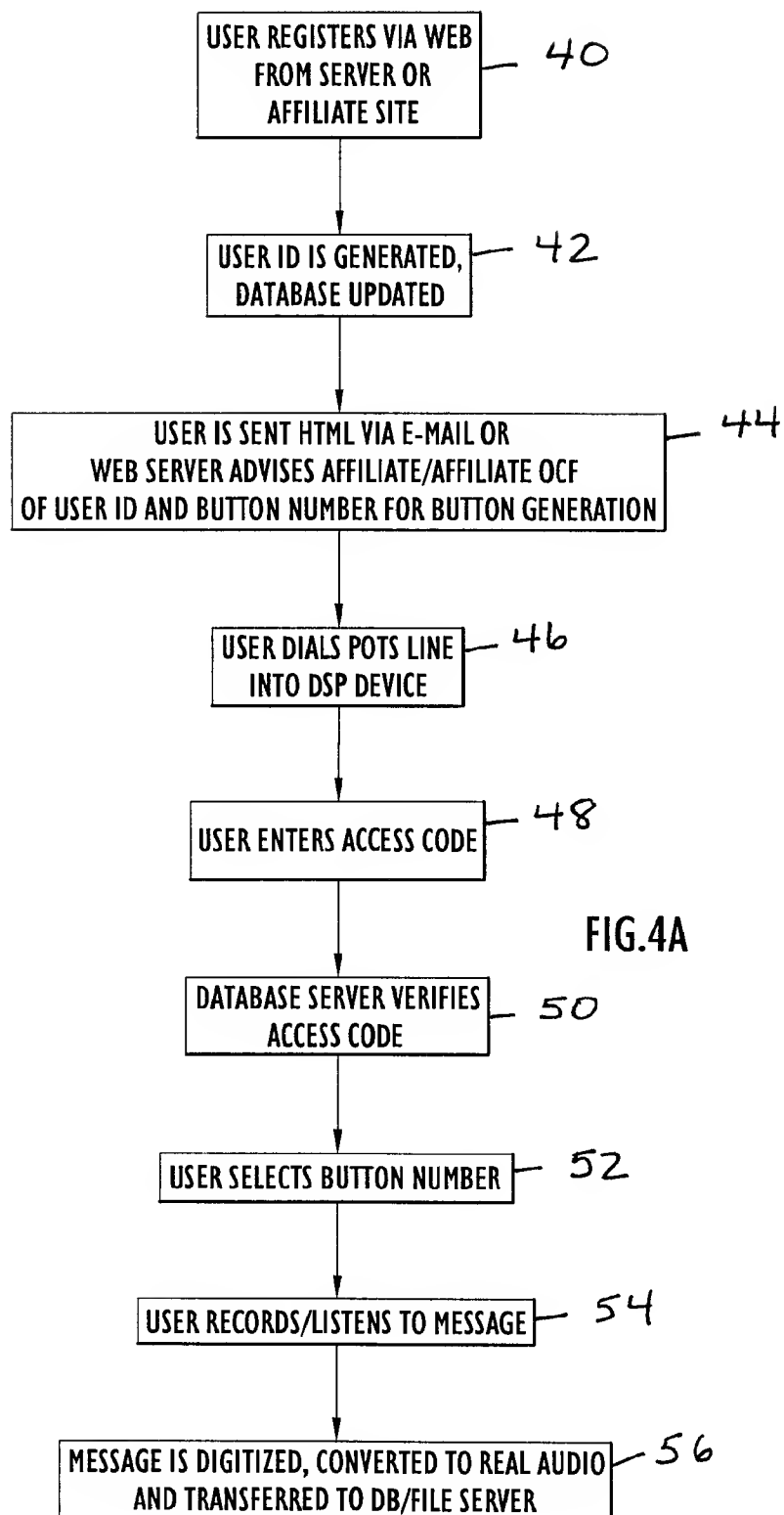


FIG.4A

```

<HTML>
<!-- THIS IS EXEMPLARY CODE FOR A BUTTON -->
<!-- BEGIN CODE -->
<TABLE><TR>
<TD><A HREF="HTTP://WWW.PAGETALK.COM/PLAY.PHTML?U=11000246&B=1"><IMG
SRC="HTTP://WWW.PAGETALK.COM/PAGETALK-BUTTON.PHTML?U=11000246&B
=1" ALT="PLAY AUDIO FOR BUTTON (1)" WIDTH=95 HEIGHT=29 BORDER=0 AL
IGN=BOTTOM></A></TD></TR>
<TR><TD><A HREF="HTTP://WWW.PAGETALK.COM/LOGO-CLICK.PHTML?U=110002
46&B=1"><IMG SRC="HTTP://WWW.PAGETALK.COM/PAGETALK-LOGO.PHTML?U=11
000246&B=1" BORDER=0 WIDTH=95 HEIGHT=11 ALIGN=BOTTOM></A></TD>
</TR>
</TABLE>
<!-- END CODE -->
</HTML>

```

FIG.4B

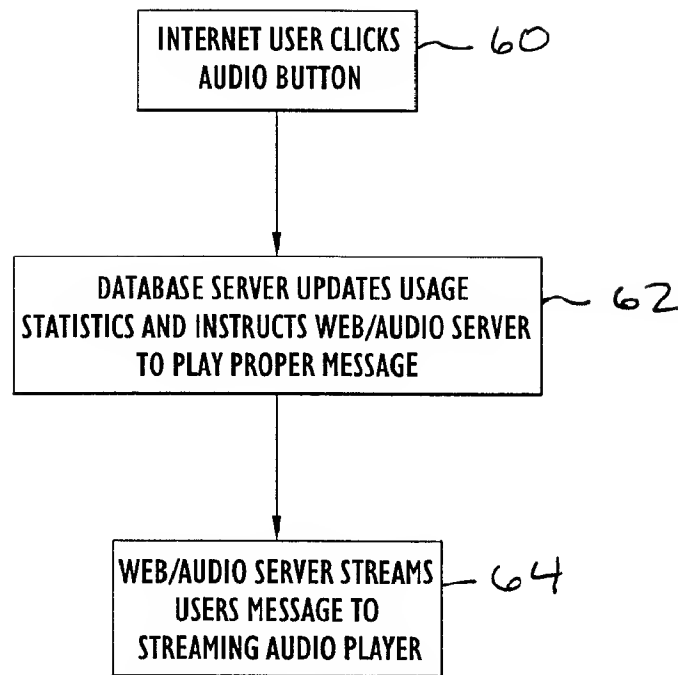


FIG.4C

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US99/30750

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : H04M 1/64, 11/00; G06F 3/14, 17/27, 17/30, 19/00; H04N 7/10, 7/14

US CL : Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 379/ 67.1,88.13,88.17,93.09,93.24,900,908; 709/204,206,208; 348/6,7,12

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
none

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
East and West

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,675,507 A (BOBO, II) 07 October 1997, Col. 4, line 22 through Col. 5, line 40.	1-16
X	US 5,572,643 A [JUDSON] 05 November 1996, Col. 6, lines 13-44.	1-7
X	US 5,557,659 A (HYDE-THOMSON) 17 September 1996, Col. 3, line 35 through Col. 4, line 47.	1-16
A,P	US 5,884,032 A (BATEMAN et al.) 16 March 1999, Figure 1 and Col. 2, lines 4-65.	1-7
A,P	US 5,884,262 A [WISE et al.] 16 March 1999, Col. 2, lines 1-66.	1-16



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document published on or after the international filing date	"Y" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Z" document member of the same patent family
"(C)" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 06 APRIL 2000	Date of mailing of the international search report <b>25 APR 2000</b>
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer Allan Hoosain <i>James R. Matthews</i> Telephone No. (703) 305-4012

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US99/30750

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,P	US 5,987,611 A (FREUND) 16 November 1999, Col. 4, lines 5-63	1-16

INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US99/30750

A. CLASSIFICATION OF SUBJECT MATTER:

US CL :

379/ 67.1,88.13,88.17,93.09,93.24,900,908; 709/204,206,208; 348/6,7,12